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(54) Title: CRYSTALLINE FORM OF FATTY ACID AMINE HYDROLASE (FAAH)

(57) Abstract: The present invention is directed to FAAH crystals in complex with the inhibitor methoxyarachidonyl fluorophosphonate (MAFP) and to the use of these crystals to determine the three-dimensional structure of FAAH. This invention id further directed to the use of this structure for the modeling or determination of the structures of related proteins. This invention is further directed to the use of this structure in the pursuit of drug design to identify, characterize, or optimize agents which bind to the active site, substrate channels, product channels, or regulatory sites of FAAH, and to the evaluation of these agents to identify agents which may stimulate, inhibit, relocalize, stabilize, or destabilize FAAH and/or its activity. This invention is further directed to the use of this structure in the development of engineered FAAH variants which display altered solubility, catalytic profiles, or substrate specificity. This invention is further directed to the use of this structure in the development of engineered heterologous proteins with altered membrane tropism.

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